

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
30 September 2004 (30.09.2004)

PCT

(10) International Publication Number  
**WO 2004/083175 A3**

(51) International Patent Classification<sup>7</sup>: **C12N 15/09**,  
C12Q 1/42, 1/48, G01N 33/53

(21) International Application Number:  
PCT/US2004/008043

(22) International Filing Date: 17 March 2004 (17.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/455,374 17 March 2003 (17.03.2003) US  
60/487,983 17 July 2003 (17.07.2003) US

(71) Applicant (for all designated States except US):  
**SMITHKLINE BEECHAM CORPORATION**  
[US/US]; One Franklin Plaza, P.O. Box 7929, Philadelphia, PA 19101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BRAMSON, Harold, Neal** [US/US]; Five Moore Drive, Research Triangle Park, NC 27709-33 (US). **GLOVER, George, I.** [US/US]; Amarillo, TX (US). **KHANDEKAR, Sanjav** [IN/US]; 709 Swedeland Road, King of Prussia, PA 19406 (US). **RATCLIFFE, Steven, John** [GB/GB]; Third Avenue, Harlow, Essex CM19 5AW (GB).

(74) Agents: **LOCKENOUR, Andrea, V.** et al.; Glaxo-SmithKline, Corporate Intellectual Property, UW2220, 709 Swedeland Road, P.O. Box 1539, King of Prussia, PA 19406-0939 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
3 February 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHODS FOR IDENTIFYING ENZYME INHIBITORS AND PROTEIN KINASES

(57) Abstract: The present invention provides methods for identifying compounds that inhibit kinases. In addition, methods for profiling protein kinases are also provided. In addition, methods for determining the mode of action of kinase inhibitors are also provided.

WO 2004/083175 A3

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/08043

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12N 15/09; C12Q 1/42, 1/48; G01N 33/53  
US CL : 435/7.1, 7.5, 15, 21, 69.2

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
U.S. : 435/7.1, 7.5, 15, 21, 69.2

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Chemical Abstracts, Biosis

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                        | Relevant to claim No. |
|------------|---|-----------------------|
| A, P       | US 6,589,758 B1 (ZHU) 08 July 2003 (08.07.2003), see entire document.                                     | 1-42                  |
| A          | WO 99/58128 A1 (MEDICAL RESEARCH COUNCIL) 18 November 1999 (18.11.1999), see entire document.             | 1-42                  |
| A, P       | WO 03/031606 A2 (ASTRAZENECA UK LIMITED) 17 April 2003 (17.4.2003), see entire document.                  | 1-42                  |
| A          | T'JAMPENS, D. et al. Selected BTB/POZ-Kelch Proteins Bind ATP. FEBS Letters. 2002, Vol. 516, pages 20-26. | 1-42                  |

☐ Further documents are listed in the continuation of Box C.



See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance  
"E" earlier application or patent published on or after the international filing date  
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
"O" document referring to an oral disclosure, use, exhibition or other means  
"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

27 August 2004 (27.08.2004)

Date of mailing of the international search report

26 NOV 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Ralph Gitomer

Telephone No. (571) 272-1600